DOCUMENTATIONOF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: **Reilly Industries, Inc.**
Facility Address: **2555 South Industrial Parkway Provo, Utah**
Facility EPA ID #: **UTD 009087644**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered**in this EI determination?

   _X__ If yes - check here and continue with #2 below.

   _NA_ If no - re-evaluate existing data, or

   _NA_ If data are not available skip to #6 and enter"IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	_X_	___	___	Subsurface water samples: VOCs, SVOCs
Air (indoors)[2]	___	_X_	___	Not a complete exposure pathway
Surface Soil (e.g., <2 ft)	_X_	___	___	Phase I and Phase II sampling results: SVOCs
Surface Water	___	_X__	___	Phase II sampling results
Sediment	_X_	___	___	Phase I and Phase II sampling results: SVOCs
Subsurf. Soil (e.g., >2 ft)	_X_	___	___	Subsurface samples: VOCs, SVOCs
Air (outdoors)	___	_X_	___	Facility not actively operating

_NA_ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

__X__ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Reilly Industries, Inc. (Reilly) has undertaken a RFI Phase I and II site investigation of releases of of constituents of concern (COCs) at the Provo, Utah facility. Portions of both the Phase I and II Workplans have yet to be completed. The Phase I report was submitted and its data approved by the Utah Division of Solid and Hazardous Waste on July 18, 2002. The data presented in the Phase I report indicated that site specific COCs are present in sediment, surface and subsurface soils, and groundwater at the site. The extent of contamination was investigated further during the Phase II, which was expanded to include surface water and deep groundwater samples. Reilly has submitted preliminary Phase II data and an addendum for additional site work. The Phase II report indicates COCs present in subsurface soil, groundwater, and sediment at site boundaries. The extent of the COCs will be delineated and their impacts to will be quantified through a risk assessment. The site itself is not operating, therefore,

there are no personal at the site. The site is also fenced with appropriate signage to warn potential trespassers regarding potential site hazards. There may be off-site impacts to subsurface soil, sediment, groundwater, and surface water, but the data produced thus far do not indicate concentrations that pose significant risks to humans using current exposure scenarios. These are discussed in greater detail in Section 3 more fully.
The Phase II RFI Workplan identified a fourteenth SWMU (Railroad Spur Loading Area) at the facility and grouped the individual SWMUs into SWMU "Areas" based on their proximity, source and contaminant characteristics, media of concern, and similar pathways. These SWMU Areas were delineated as single units during Phase II RFI implementation and included the following groups of SWMUs:

SWMU Area 1 – Ironton Canal (SWMU #1);

SWMU Area 2 – North and South Impoundments (SWMU #2 and SWMU #3) and Metal Evaporation Tank (SWMU #10);

SWMU Area 3 – Separation Tanks (SWMU #4), the Modified API Oil/Water Separator (SWMU #5), Biotreatment Tanks (SWMU #6), Pole Barn No. 1 and Pole Barn No. 2 (SWMU #7 and SWMU # 8), Solidified Coal Tar Windrows (SWMU #9), Railroad Spur and Loading Area (SWMU #14), and CoolingPond (portion of SWMU #1);

SWMU Area 4 – By Product Lagoons (SWMU #11) and Evaporation Areas (SWMU #12); and,

SWMU Area 5 – Site-Wide groundwater.

A list of the site specific COCs are attached as Table 1. Affected media, SWMU Areas, and individual SWMUs are identified in Table 2.

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

TABLE 1
Contaminants of Concern

VOLATILES
Acetone
Benzene
Carbon Disulfide
Chloroform
Dibromomethane
Ethylbenzene
Methyl Ethyl Ketone
Methylene Chloride
Toluene
Xylenes
SEMI VOLATILES
Acenaphthene
Acenaphthylene
Anthracene
Benzenethiol
Benzo (a) anthracene
Benzo (a) pyrene
Benzo (b) fluoranthene
Benzo (k) fluoranthene
Chrysene
Dibenzo (a,h) anthracene
Dibenzofuran
2,4-Dimethylphenol
Fluoranthene
Flourene
Indeno (1,2,3-cd) pyrene
2-Methylphenol
3-and 4-Methylphenol
Naphthalene
2-Methylnaphthalene
Phenanthrene
Phenol
Pyrene
Resorcinol
[redacted]
Cyanide
Sulfate
Sodium

TABLE 2
MEDIA OF CONCERN BY SWMU

SWMU			
1	1 (Canal)	Ironton Canal	Sediment/Surface Water/Subsurface Soil
2	2, 3, & 10	North and South Impoundments/ Evaporation Pan/Spill Pile	Subsurface Soil
3	1 (Cooling Pond), 4, 5, 6, 7, 8, 9, 13, & 14	Cooling Pond/ Separation Tanks and Modified API Oil/Water Separator/ Biotreatment Tanks/ Pole Barn No. 1 and No.2/ Solidified Coal Tar Windrows/ Process Area Soil and Groundwater Protection System (Not Investigated)/ Railroad Spur and Loading Area	Surface Soil Subsurface Soil
4	11 & 12	By-Product Lagoons/ Evaporation Areas	Subsurface Soil
5	Site-Wide Groundwater	Site-Wide Groundwater	Groundwater

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
Contaminated Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	No	No	No	No	No	No	No
~~Air (indoors)~~							
Soil (surface, e.g., <2 ft)	No	No	No	No	No	No	No
~~Surface Water~~							
Sediment	No	No	No	No	No	No	No
Soil (subsurface e.g., >2 ft)	No	No	No	No	No	No	No
~~Air (outdoors)~~							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

__**X**___ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

__**NA**__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

__**NA**__ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

Groundwater

A monitoring well network has been established in the vicinity of the property and groundwater impacts are being delineated. The Phase I and II data indicated that site groundwater is very shallow and impacted with COCs. According to personnel with the City Of Provo Water Resources Management, the shallow

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[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

groundwater that is common throughout the area is not utilized for potable water nor is it of suitable quality for human consumption (Turbidity, Total Dissolved Solids, etc...). The nearest supply well (City of Provo) is 1.7 miles to the north of the facility. Much of the shallow groundwater at the facility has been shown to flow to the south-southwest.

On-site operations are currently inactive and therefore exposure to site groundwater appears nonexistent, but adjacent property operated by Pacific State Steel (PSS) has impacted groundwater on their site that originates from Reilly. The impacted area at PSS is mostly paved with asphalt and there appears to be little or no contact with the impacted groundwater. PSS has been provided with sampling data and are allowing investigative efforts to proceed.

An exposure pathway associated wtih groundwater may be complete via surface water that discharges to the Ironton Canal. The Phase II data indicates the presence of VOCs (benzene at 2.0 ppm) and SVOCs in the groundwater located near the northwest corner of the site. Benzene, at low concentrations, has been detected in a discharge that drains surface water from the site. Other surface water samples collected up gradient did not contain benzene, therefore the nearby groundwater appears to be the source. The level of benzene was low and therefore did not appear significant in terms of its exposure concentration and was therefore not listed in Section 2. It is not known how representative these concentrations were and they should be investigated further.

Surface Soil

Surface soil impacts were discovered during Phase I activities at SWMUs 6, 7, 8, and 9. As previously mentioned the site is currently inactive, so only authorized personnel will have access and there is little to no disturbance of surface soils at the site. In order to further limit unauthorized entrance to the facility, engineering controls consisting of signage and additional fencing have been installed at the facility.

Sediment

Sediment impacts identified during the Phase I activities within the Ironton Canal have been made inaccessible using the above-mentioned signage, fencing and fence repairs. The canal is not a recreational waterway, so fishing, swimming, and boating are not reasonably expected to occur. Furthermore, culverts at the property boundaries restrict access to the property via the canal. Phase II sampling of the Biologically Active Zone revealed no impacts in the upper six-inches of sediment.

Subsurface Soil

Under current land-use conditions, no reasonably expected exposure pathways for subsurface soils are present. On-site operations are currently inactive, and any potential exposure to on-site impacts would be via environmental professionals conducting further investigation or remediation. Such personnel are required to have been trained and equipped to deal with potential exposure issues.

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_NA__ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_NA_ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_NA__ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5 Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

__**NA**__ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_**NA**__ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

__**NA**_ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

_X__ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Reilly Industries, Inc. facility, EPA ID # UTD009087644, located at 2555 South Industrial Parkway located in Provo, Utah under current and reasonably expected conditions.
This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

_NA_ NO - "Current Human Exposures" are NOT "Under Control."

_NA_ IN - More information is needed to make a determination.

Completed by Rolf Johnsson Date 9-27-05

Rolf Johnsson
Environmental Engineer

Supervisor Scott Anderson Date 9-27-05

Scott Anderson
Manager, Hazardous Waste Branch
Utah Division of Solid and Hazardous Waste

Locations where References may be found:

1) Risk Assessment Guidance for Superfund (RAGS); Volume 1 – Human Health Evaluation Manual; Part B, U.S *1991*
2) Interim-Final Guidance for RCRA Corrective Action Environmental Indicators, Office of Solid Waste, 1999
3) Phase I RFI Report, Reilly Industries, Inc., Provo UT, by AME, Nov. 24, 2002. Submitted to UDSHW
4) Phase II RFI Workplan, Reilly Industries, Inc., Provo UT, by AME , Oct. 2002

Contact telephone and e-mail numbers

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Facility Name:	**Reilly Industries, Inc**
EPA ID#:	**UTD009087644**
City/State:	**Provo, Utah**

CURRENT HUMAN EXPOSURES UNDER CONTROL (CA 725)